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GENERAL NOTES.

BOTANY.¹

MOTILITY IN THE FLOWERS OF *DRABA VERNA*.—As is well known this plant flowers during any open time in spring, say from February to June, with us. In the early part of the season the petals expand about 9 A. M. and close about 2 P. M. Surprised that I had not noticed this opening and closing years before, I was led to observe it from day to day, and many times a day. If there was the least cloudiness, no matter how great the volume of light, the petals would not expand. During nearly a week of cloudiness no flowers expanded. On the least burst of sunlight, however, the flowers opened, provided always, it was before 2 P. M. I felt little hesitation in deciding that sunlight was the immediate agency in expansion. One day we had a heavy thunder shower. The next day was wholly cloudy, but strange to say they expanded during this warm moist cloudy day, as well as under the previous sunlight! They seem to expand every day since, sunlight or not, through all these variations, however, up to to-day they close regularly about two o'clock. To my mind it leaves the cause of motion more obscure than ever. It is evidently not light alone, and it is a gain to know what it is not. Yet if we had reflected we might have learned this lesson before, for there are some flowers opening at every hour of the twenty-four. Under the same light when one expands another may be closing; what is one man's meat is another one's poison. It is not the food, but the internal arrangements, it is not the light, but the ability to make use of it.—*T. Meehan, May 7th, 1881.*

NEW WORK ON THE FUNGI.—Prof. Saccardo writes me that the first part of his *Sylloge Fungorum Omnium* is now in press and will soon be ready, embracing the *Erysipheæ*, *Perisporiaceæ* and *Capnodiæ*. This will be followed by the *Sphæriaceæ*, so that it is expected all of the Pyrenomycetes will be finished this year.

It will be recollected that the *Sylloge* is to include diagnoses of all the species of fungi published up to the present time, thus doing to some extent for the fungi, what De Candolle's *Prodromus* is doing for the Phanerogams.

The importance of such a publication will at once be evident, bringing together and rendering accessible the *disjecta membra* of mycological literature, which, lying as it now does scattered through various publications and in the transactions of the scientific societies in different parts of the world, is to the ordinary student for the most part inaccessible.

The work can be obtained by addressing Professor P. A. Saccardo, Padova, Italy. The expense will be from eight to ten dollars per year, and the work will require probably four years for completion.—*J. B. Ellis, Newfield, N. J.*

¹Edited by PROF. C. E. BESSEY, Ames, Iowa.

DE THÜMEN'S MYCOTHECA UNIVERSALIS.—This valuable mycological collection, which was begun in 1875, now includes 2000 species; the 20th century having been issued towards the close of 1881.

The work is very neatly gotten up, and including as it does species from all parts of the world, many of which are rare and valuable, is well worth the moderate price at which it is sold.

An index to the first twelve centuries has been published, from which it may be noted that among these 1200 species there are of the

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|--------------------|-----|
| Hymenomycetes..... | 105 |
| Discomycetes..... | 60 |
| Sphaeriacei..... | 185 |
| Uredinei..... | 300 |

These different orders are apparently represented in about the same relative proportion in the remaining centuries of the collection (XIII–XX).

The preponderance of the Uridinei is noticable, comprising as it does one-fourth of the whole number of species. Of these 237 were collected in Europe, 33 in America, 21 in Africa, 7 in Asia, and 2 in Australia.

The bulk of the species, as would be expected, are European, but as at least three collections at different points in the Middle and Southern States have contributed more or less, the proportion of American species is comparatively very small and naturally leads to the enquiry whether the Uredinei are really represented by a less number of species here than in Europe.

That this may be the case is further indicated by the fact that in the "North Am. Fungi" of which the material for nine centuries is now collected, there are, after throwing out from cent. III 25 species not belonging to this order and adding 50 species since collected, only 125 species of Uredinei or about $\frac{1}{4}$ part of the whole number thus far collected.

It is to be borne in mind, however, that in the Report of the N. Y. State Museum of Nat. History, nearly 200 species of Uredinei have already been enumerated, and it is altogether probable that on a thorough exploration of our territory, the list of American species of this order will be largely augmented.—*J. B. Ellis, New-field, N. J.*

NOTES ON N. AMERICAN GRASSES, BASED ON MR. BENTHAM'S RECENT PAPER ON GRAMINEÆ.—

Series 1st—PANICACEÆ.

Polypogon is placed by Mr. Bentham in this series because of the disarticulation of the spikelets below the glumes. Otherwise its relationship is with Agrostis.

Thurbera, a new genus by Bentham, to include two N. A. species which have been variously referred to Limnas, Greenia, and Streptachne. The first named is an Arctic grass to which ours are not related, and the two other names are preoccupied. The genus is very properly named after Prof. Geo. Thurber, as "the genus formerly dedicated to him by Asa Gray, has since proved not to be distinct from Gossypium."

Pleuraphis Torr., is very properly referred to *Hilaria* H.B.K. Mr. Benthams says our Texan species, which has been called *Hilaria cenchroides* H. B. K., is apparently distinct.

Ægopogon is placed in *Panicaceæ*.

Andropogoneæ is subdivided into four groups or sub-tribes: *Sacchareæ*, *Arthraxeæ*, *Rottboelliæ* and *Andropogoneæ* proper. *Sacchareæ* comprise seven genera: *Imperata*, *Miscanthus*, *Saccharum*, *Erianthus*, *Spodiopogon*, *Pollinia* and *Pogonatherum*; the second and seventh not represented in N. America. The group *Arthraxeæ* also not represented in N. America.

Rottboelliæ. The American genera of this group are *Elionurus*, *Rottboellia* and *Manisuris*. *Andropogon Nuttallii* Chap., is an *Elionurus* nearly related to *E. ciliaris* H. B. K.

Euanthropogoneæ compose nine genera, of which we have *Ischæmum* (introduced), *Trachypogon*, *Heteropogon*, *Andropogon*, *Chrysopogon* and *Sorghum*. *Andropogon* is divided into five sections: *Schizachyrium*, *Cymbopogon*, *Gymnandropogon*, *Amphilopsis* and *Vetiveria*. Our species of *Sorghum*, as *S. nutans* and *S. arenacea*, are species of *Chrysopogon*. *Sorghum* includes only the cultivated *S. vulgare* and *S. halapense*.

Series 2d—POACEÆ.

Tribe 1st—*Phalaridæ*: *Phalaris*, *Anthoxanthum* and *Hierochloa*.

Tribe 2d—*Agrostæ*. We have *Aristida*, *Stipa*, *Oryzopsis* (which includes *Piptatherium* and *Eriocoma*), *Millium*, *Muhlenbergia* (which includes *Vaseya* and *Podosæmum*), *Brachyelytrum*, *Perieilema*, *Lycurus*, *Phleum*, *Coleanthus*, *Phippsia* (an Arctic genus) and *Sporobolus*. *Sporobolus* includes *Vilfa*, Beauv. In this tribe we have also *Epicampes*, which includes *Cinna macroura* Thurb. (which is not *E. macroura* Kunth, but *E. rigeus* Benth). Of *Cinna* we have two species, *C. arundinacea* and *C. pendula*.

In *Deyeuxia* are included all our species of *Calamagrostis* except two or three which go into *Ammophila* Host. *Arctagrostis* is an Arctic genus of this tribe.

The tribe *Isachneæ* is represented in the West Indies and perhaps in Mexico.

Tribe *Aveneæ*—16 genera. All our native species of *Aira* are referred to *Deschampsia*.

Tribe *Chloridæ*—27 genera. *Chloris* includes *Eustachys* Desv. *Trichloris* Fourn. includes two Texano-Mexican species.

Lepturus paniculatus Nutt., is referred to *Schedonnardus* Steud.

Bouteloua has four sections: *Chondrosium*, *Atheropogon*, *Triathera* and *Polyodon*. *Eleusine* includes *Dactyloctenium* Willd.

Leptochloa dubia and *L. fascicularis* are referred to *Diplachne* in the tribe *Festucaceæ*, as also the following:

Triodia includes *Uralespis* and *Tricuspis*. *Triplasis* Beauv. has two N. American species. *Stenochloa* Nutt., is now *Dissanthelium* Trin. *Pleuropogon* Br., includes *Lophochlæna* Nees. Our *Brizopyrum* is *Distichlis* Raf. *Briza* includes *Calotheca* Desv. *Graphephorum* Desv., contains seven species, as arranged by Dr. Gray. *Atropis* Rupt., is referred to *Glyceria*. *Bromus* includes *Ceratochloa* D. C.

Hordiaceæ; Our native *Triticums* are referred to *Agropyrum*. *Gymnostichum* Schr., or *Hystrix* Moench., is referred to *Asprella* Willd.

—*Geo. Vasey, Washington, D. C.*

BOTANICAL NOTES. — Romyn Hitchcock, of New York, has merited the gratitude of botanists by undertaking the publication of Habirshaw's "Catalogue of the Diatomaceæ," which contains full references to the published descriptions and figures. Every botanical library should secure a copy of this valuable work at an early date, as the edition is limited to two hundred and fifty copies. Part I of this work has just appeared.—The same publisher has on sale Dr. Henri Van Heurck's "Synopsis des Diatomées de Belgique," of which four of the six fascicles have appeared. The excellent plates which constitute the substance of the fascicles include many hundred

species, a large proportion of which are common in our waters. This work, with the catalogue noted above, will go far to render easier the systematic study of the diatoms.—Professor C. H. Peck re-describes, in the January *Torrey Bulletin*, a curious fungus, *Secotium Warnei*, which constitutes “a connecting link between the Hymenomycetous Agaricini, and the Gasteromycetous Trichogasters.” The close resemblance of some of the stipitate forms to an unexpanded Agaric was, in specimens from Iowa, quite remarkable, and the writer of this note was for a time puzzled to determine whether it might not be an Agaric after all.—The Forestry Bulletins issued from the Census Office, and prepared by Professor Sargent, are of great interest and value to botanists. When the series of bulletins is completed we shall have a most excellent and reliable map of the forest distribution of the United States.—Wiley & Sons, of New York, have, at the request of some of their patrons, reprinted the edition of “Lindley's Horticulture,” which they brought out many years ago, and which had long been out of print. We are glad to see the old book again, and hope that ere long it may be honored with a revision, bringing it up to the present status of vegetable physiology.

ZOÖLOGY.

THE CELL-PARASITE OF THE FROG.—The *Revue Scientifique*, of January 28, 1882, contains an abstract of the discovery by Dr. Gaule, in the frog's red blood corpuscle, of certain bodies which he considers to be derived, under certain circumstances, from the protoplasm of those corpuscles. On treating the red corpuscles with a solution of six per cent. of chloride of sodium, there appeared, beside the nucleus, mobile corpuscles, elongate and pointed at the extremities. These issued from the cell, which they could drag after them for some time, but after a little while became motionless, and finally died and disappeared.

These mobile particles are not met with in all frogs, the season, locality, size, and general state of the animal seeming to have considerable influence on their production, which is most abundant in the season when the frog takes no food, and depends for sustenance upon the reserves stored up in the season of activity. In the cells of such organs as the spleen, the liver, and the marrow of the bones, these particles develop at the expense of the red blood corpuscles more easily and quickly than in the blood itself, and they are more readily obtainable from the spleen than from any other organ. The addition of the saline solution to the sugar of that organ, without the application of heat, caused them to appear. When the violet of gentian was added to the solution only these bodies and the nucleus were colored and this fact led Gaule to suspect that they were derivatives of the nucleus.

In a last series of observations, Dr. Gaule experimented on tissues taken from the living animal. When these were treated with a solution of corrosive sublimate or of nitric acid of three